IN THE CLAIMS

1. (Currently Amended) A method of converting application data to transport data in a power line communication system, the method comprising:

receiving application data in a transport protocol layer from an application in a device through a service access point, the service access point being one of a plurality of service access points of the transport protocol layer;

classifying the application data in the transport protocol layer as internet protocol (IP) based or non-IP based according to the associated service access point after receiving the application data through the service access point;

determining in the transport protocol layer if a connection through a lower protocol layer exists for the application data in response to the classification of the application data;

if a connection exists for the application data, mapping the application data into transport data; and

transmitting the transport data across the power line communication system.

2. (Original) The method of claim 1, the method comprising automatically establishing a connection if none exists, comprising:

generating a connection specification based upon the application data and the service access point; and

establishing a connection based upon the connection specification; and

mapping the application data into transport data for that connection.

3. (Original) The method of claim 1, wherein receiving application data from an application further comprises receiving connection-oriented application data from the application.

4. (Previously presented) The method of claim 1, wherein receiving application data further comprises:

receiving connectionless application data from the application; and

mapping the connectionless application data into transport data for a power line communication system connection;

wherein the power line communication system is connection-oriented.

5. (Cancelled)

6. (Currently Amended) A method of transmitting data on a network, the method comprising:

receiving an incoming data packet from an application on a device at one of a plurality of service access points of a first protocol layer;

classifying the data packet in the first protocol layer ~~according to~~ in a classifier associated with the service access point ~~and at least one rule~~, including:

determining an order of rules associated with the classifier to apply to the data packet using a priority of each of the rules;

applying the rules to the data packet in the order, including when applying a particular rule to the data packet:

for each classification parameter of the rule, comparing a field of the data packet identified by a parameter ID of the classification parameter with a value of the classification parameter; and

if for each classification parameter of the rule, a matching value is found in the data packet, causing the packet to be associated with a connection associated with the rule that is established at an interface between the first protocol layer and a second protocol layer, wherein the second protocol layer is a lower level protocol layer;

routing the packet to the connection; and

transmitting the data.

7. (Original) The method of claim 6, the method comprising fragmenting the packet into smaller packets as needed based upon the packet size.

8. (Original) The method of claim 6, the method comprising fragmenting the packet into smaller packets as needed depending upon the bandwidth of the connection.

9. (Original) The method of claim 6, classifying the data packet further comprising determining if a connection exists for the packet, and requesting a connection if a connection does not exist.

10. (Cancelled)

11. (Previously presented) A method of classifying data packets in a communication system, the method comprising:

analyzing an incoming data packet according to a plurality of sets of parameters, wherein the sets of parameters analyzed depends upon a type of service access point from which the data packet came, each set of parameters includes a priority, and the sets of parameters are used in analyzing the data packet according to an order of the priorities of the sets of parameters;

if the set of parameters in the data packet match a predefined set of parameters associated with a connection identifier, associating the connection identifier for the predefined set of parameters with the packet.

12. (Cancelled)

13. (Previously presented) The method of claim 11, the method comprising transmitting parameters of the data packet to a connection manager if the parameters of the data packet do not match a predefined set of parameters.

14. (Previously presented) The method of claim 1, further comprising:

accessing a classification table for a mapping of the service access point to a connection identifier; and

providing a connection associated with the connection identifier as the connection.

15. (Previously presented) The method of claim 1, further comprising:

accessing a classification table for a mapping of the service access point and at least one of an IP address, a port number, and a type of service field to the connection identifier; and

providing a connection associated with the connection identifier as the connection.

16. (Previously presented) The method of claim 15, further comprising:

accessing the classification table for a mapping of the service access point, an IP address, and a port number to the connection identifier.

17. (Previously presented) The method of claim 1, further comprising:

comparing the application data with at least one classifier rule for a match; and

providing a connection associated with a matching classifier rule as the connection.

18. (Previously presented) The method of claim 17, further comprising:

comparing the application data only with classifier rules associated with the service access point.

19. (Previously presented) The method of claim 17, wherein for application data that is audio/visual application data:

comparing the application data to only at least one destination address within the at least one classifier rule.

20. (Cancelled)

21. (New) The method of claim 6, wherein each rule comprises:

the priority associated with the rule;

a connection identifier;

a transport layer port; and

at least one classification parameter, each classification parameter including a parameter ID and a value.

22. (New) The method of claim 21, wherein for each rule associated with audio/visual application data, the rule includes only one classification parameter.

23. (New) The method of claim 22, wherein:

for each rule associated with audio/visual application data, the classification parameter of the rule includes a destination address ID as the parameter ID.